

4. DO'S AND DO NOT'S IN THE MICROBIOLOGY LABORATORY

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Introduction

There is a certain element of risk in anything you do, but the potential risks in a microbiology course are greater. Persons who work in a microbiology lab may handle infectious agents in addition to other hazards such as chemicals and radioactive materials. There have been many documented cases of lab personnel acquiring diseases due to their work. About 20% of these cases have been attributed to a specific incident, while the rest have been attributed to work practices in the lab. It is possible that you can be exposed to potentially harmful microbes when you isolate bacteria from environmental materials. Working in microbiology demands a strict personal and environmental safety. Personal safety denotes protocols avoiding laboratory accidents and environmental safety denotes maintaining clean laboratory practices to prevent contamination from exogenous sources. Integral part of microbiology is the aseptic techniques since microbiology laboratory deals with microbes of public health importance. Aseptic techniques denote free from pathogenic organism and pathogens means organism capable of causing disease. All microbes handled at the laboratory should be always considered equally as potential as pathogens.

- ✓ Before entering the microbiology laboratory for handling of microbes wear lab coats.
- ✓ Keep back laboratory coats, observation note books, pen, pencils and other accessories used during observation in the specified location and strictly avoid work benches.
- ✓ Keep the doors and windows of the microbiology laboratory closed during the handling to avoid contamination from the air currents and avoiding the possible spread to the outside environment.
- ✓ Use disinfectant solution to wipe the bench top before and after handling of microbes.
- ✓ Sterilize the inoculating loops and needles by incineration in Bunsen burner.
- ✓ Discard the handled pipette in the receptacle designated for the keeping and the tips to the biohazard waste containers designated for disposing.
- ✓ Place all the cultures back in their respective places after handling either at decontamination area for disposing or at storing racks for future use.
- ✓ Fungal cultures if at all to be handled in the bacteriology laboratory should be manipulated with the utmost care and rapid and efficient way to avoid spread of reproductive spores into the laboratory environment for the personal safety.
- ✓ While leaving the laboratory wash your hands with liquid detergents
- ✓ Women should wear paper cap to avoid exposure of hairs to flame

- ✓ Wear lab coats to protect from contamination and safety during handling of cultures and chemicals and toxic substances
- ✓ Closed shoes designated to be used inside the laboratory should be available
- ✓ Not to insert contact lenses or cosmetic inside the laboratory
- ✓ Do not smoke or eat or drink inside the laboratory
- ✓ Carry cultures always in tube racks or trays while moving from one place to other or while storing on the work benches
- ✓ Do not transport media, equipment, cultures from the laboratory to outside without proper safety measure.
- ✓ In case of any spill, cover the area with the disinfectant solution to saturate the spill and leave it for 15 minutes and put paper towel or cloth towel over to cover the spill and dispose it off with decontamination procedure.
- ✓ Mouth pipetting of cultures and toxic chemicals are strictly and completely prohibited in the laboratory. Alternatively use the mechanical pipetting aid or devices as and when required.
- ✓ Use self-sticking labels inside the laboratory
- ✓ Use disposable glove while handling of known high risk group organism and dispose off the gloves after handling for decontamination
- ✓ Wear face mask, safety goggles, laboratory coats if aerosol forming procedures are going on
- ✓ Use bleach solution at 1:10 concentration for decontamination

General steps for maintaining hygiene in the laboratory

- Keep back all the media, reagents, test tubes etc in the specified respective places
- Close all the lids of the media before use and keep it back on specified rack or location (Media are hygroscopic in nature)
- Clean the weighing balance if any spill of salts, media etc., only after switching off the weighing balance
- Switch off gas, pipe connection, lights, equipment not in use after working hours
- Keep back all the handled cultures, test tube racks, petridishes, contaminated swabs, disposable pipettes, to the biohazard receptacle prior to decontamination.
- Handle potential carcinogen in fume hood.